

U.S. Application Serial No. 10/529,134
Attorney Docket: 47623-0006
Response to Final Office Action of July 3, 2006

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AMENDMENTS TO THE CLAIMS

This listing of claims will replace all prior versions, and listings, of claims in the application:

Listing of Claims:

1. (CURRENTLY AMENDED) A fixing element for fixing a component on a support part, wherein said fixing element comprises:

a retaining part for the component to be fixed,

a hollow anchor foot for anchoring the fixing element in a continuous bore of the support part,

and

a spring stop that is arranged between the retaining part and the anchor foot, wherein a wall of the anchor foot contains two opposing openings, wherein two spring arm pairs that are spread apart in a direction of the retaining part respectively originate at a lower edge of said openings, each of said two spring arm pairs comprising a short spring arm (5) and a long spring arm (6), wherein the spring arms have faces that adjoin the support part after it is inserted into the bore of the support part, and wherein the faces of said long and short spring arms lie in two different horizontal planes, characterized by the fact that the short spring arms (5) as well as the long spring arms (6) radially widen in the direction of the retaining part (1), from a lower edge of the respective opening (4) to an outer edge (11) of the short spring arms (5) and an outer edge (12) of the long spring arms (6), and are then radially recessed up to their respective face (7, 8) in a form of several steps such that several horizontal step surfaces (9, 10) are formed in different planes and several vertical contact surfaces (13,14) are formed at different radial distances from a center axis (M) of the fixing element on each spring arm (5,6), wherein the faces (7,8) and the individual horizontal step surfaces (9,10) of one spring arm pair (5,6) lie in similar respective planes and its corresponding individual vertical contact surfaces (13,14) lie at similar respective radial distances from the center axis (M), but in different planes and at different radial distances from the center

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axis (M) relative to the other spring arm pair (6,5), further wherein the horizontal step surfaces on the short spring arms (5) and the horizontal step surfaces on the long spring arms (6) are offset relative to one another in such a way that the faces (8) or horizontal step surfaces (10) of the long spring arms (6) and the faces (7) or horizontal step surfaces (9) of the short spring arms (5) are alternately brought into contact with an underside of the support part as a material thickness thereof increases and the vertical contact surfaces (13) of the short spring arms (5) and the vertical contact surfaces (14) of the long spring arms (6) accordingly are alternately brought in contact with a circumferential surface of the bore as a diameter thereof increases (D2 to D1), and further wherein at least one radial distance (R1) between an outer edge (11,12) of one spring arm (5,6) and the center axis (M) of the fixing element is longer than half a diameter (D1/2) of the bore in the support part by such an amount that the anchor foot (2) is secured therein and by the fact that the shortest possible radial distance (R2) between the base of the spring arms (5,6) and the center axis (M) is slightly less than half the diameter (D2/2) of the bore in the support part.

Claims 2-3 (CANCELED)

4. (CURRENTLY AMENDED) A fixing element for fixing a component on a support part, comprising:

a retaining part,

a spring stop coupled to said retaining part, and

an anchor foot coupled to said spring stop, said anchor foot comprising a plurality of spring arms, said plurality of spring arms comprising at least one short spring arm and at least one long spring arm, wherein each of said plurality of spring arms is:

biased to extend from a body surface of said anchor foot,

capable of being compressed, and

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radially recessed such that a plurality of substantially horizontal surfaces are formed in a plurality of different planes and a plurality of substantially vertical contact surfaces are formed at a plurality of different radial distances from a center axis of said fixing element, said spring arms being arranged such that said plurality of different planes of said at least one short spring arm alternate with said plurality of different planes of said at least one long spring arm

wherein at least one of said plurality of different radial distances is greater than half of a diameter of a bore of said support part, said bore capable of receiving said anchor foot, and an anchor foot radial distance from said center axis of said fixing element to said body surface of said anchor foot is less than half of said diameter of said bore of said support part.

5. (CANCELED)

6. (CURRENTLY AMENDED) The fixing element of claim 4 [[5]], wherein each of said plurality of substantially horizontal surfaces formed on a first short spring arm of said at least one pair of short spring arms lies in a substantially similar plane to one of said plurality of substantially horizontal surfaces formed on a second short spring arm of said at least one pair of short spring arms.

7. (PREVIOUSLY PRESENTED) The fixing element of claim 6, wherein each of said plurality of substantially vertical contact surfaces formed on said first short spring arm lies at a first radial distance from said center axis of said fixing element approximately equal to a second radial distance from said center axis of said fixing element corresponding to one of said plurality of substantially vertical contact surfaces formed on said second short spring arm.

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8. (PREVIOUSLY PRESENTED) The fixing element of claim 6, wherein each of said plurality of substantially horizontal surfaces formed on a first long spring arm of said at least one pair of long spring arms lies in a substantially similar plane to one of said plurality of substantially horizontal surfaces formed on a second long spring arm of said at least one pair of long spring arms.

9. (PREVIOUSLY PRESENTED) The fixing element of claim 6, wherein each of said plurality of substantially vertical contact surfaces formed on a first long spring arm of said at least one pair of long spring arms lies at a first radial distance from said center axis of said fixing element approximately equal to a second radial distance from said center axis of said fixing element corresponding to one of said plurality of substantially vertical contact surfaces formed on a second long spring arm of said at least one pair of long spring arms.

10. (CURRENTLY AMENDED) The fixing element of claim 4 [[5]], wherein each of said plurality of substantially horizontal surfaces formed on a first long spring arm of said at least one pair of long spring arms lies in a substantially similar plane to one of said plurality of substantially horizontal surfaces formed on a second long spring arm of said at least one pair of long spring arms.

11. (PREVIOUSLY PRESENTED) The fixing element of claim 10, wherein each of said plurality of substantially vertical contact surfaces formed on said first long spring arm lies at a first radial distance from said center axis of said fixing element approximately equal to a second radial distance from said center axis of said fixing element corresponding to one of said plurality of substantially vertical contact surfaces formed on said second long spring arm of said at least one pair of long spring arms.

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12. (PREVIOUSLY PRESENTED) The fixing element of claim 4, wherein said spring stop and said plurality of spring arms are capable of cooperating such that said fixing element is secured to said support part.

13. (PREVIOUSLY PRESENTED) The fixing element of claim 4, wherein said anchor foot further comprises a plurality of openings.

14. (PREVIOUSLY PRESENTED) The fixing element of claim 13, wherein said plurality of spring arms are coupled to said openings.

15. (CURRENTLY AMENDED) A fixing element for fixing a component on a support part, comprising:

a retaining part,

a spring stop coupled to said retaining part, and

an anchor foot coupled to said spring stop, said anchor foot comprising a plurality of spring arms, said plurality of spring arms comprising at least one pair of short spring arms and at least one pair of long spring arms, wherein each of said plurality of spring arms is:

biased to extend from a body surface of said anchor foot,

capable of being compressed, and

radially recessed such that a plurality of substantially horizontal surfaces are formed in a plurality of different planes and a plurality of substantially vertical contact surfaces are formed at a plurality of different radial distances from a center axis of said fixing element, said spring arms being arranged such that said plurality of different planes of said at least one short spring arm alternate with said plurality of different planes of said at least one long spring arm, and further wherein:

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said spring stop and said plurality of spring arms are capable of cooperating such that said fixing element is secured to said support part,

each of said plurality of substantially vertical contact surfaces formed on a first long spring arm of said at least one pair of long spring arms lies at a first radial distance from a center axis of said fixing element approximately equal to a second radial distance from said center axis of said fixing element corresponding to one of said plurality of substantially vertical contact surfaces formed on a second long spring arm of said at least one pair of long spring arms,

each of said plurality of substantially horizontal surfaces formed on said first long spring arm lies in a substantially similar plane to one of said plurality of substantially horizontal surfaces formed on said second long spring arm,

said anchor foot further comprises a plurality of openings, and

said plurality of spring arms are coupled to said openings, and

at least one of said plurality of different radial distances is greater than half of a diameter of a bore of said support part, said bore capable of receiving said anchor foot, and an anchor foot radial distance from said center axis of said fixing element to said body surface of said anchor foot is less than half of said diameter of said bore of said support part.

16. (PREVIOUSLY PRESENTED) The fixing element of claim 15, wherein each of said plurality of substantially vertical contact surfaces formed on a first short spring arm of said at least one pair of short spring arms lies at a third radial distance from said center axis of said fixing element approximately equal to a fourth radial distance from said center axis of said fixing element corresponding to one of said plurality of substantially vertical contact surfaces formed on a second long spring arm of said at least one pair of long spring arms.

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17. (PREVIOUSLY PRESENTED) The fixing element of claim 16, wherein each of said plurality of substantially horizontal surfaces formed on said first short spring arm lies in a substantially similar plane to one of said plurality of substantially horizontal surfaces formed on said second short spring arm.

18. (PREVIOUSLY PRESENTED) The fixing element of claim 15, wherein each of said plurality of substantially horizontal surfaces formed on a first short spring arm of said at least one pair of short spring arms lies in a substantially similar respective plane to one of said plurality of substantially horizontal surfaces formed on a second short spring arm of said at least one pair of short spring arms.